A Prospective Post-market Clinical Follow-up Registry to Evaluate Real-world Effectiveness of Duodenal Mucosal Resurfacing in Patients with Type 2 Diabetes

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BACKGROUND

- Despite the availability of many glucose-lowering agents (GLAs) for type 2 diabetes (T2D), efficacy is constrained by chronic polypharmacy, contributing to patient burden and dissatisfaction. Moreover, clinical trial efficacy may not fully translate to treatment effectiveness in the real world.
- The duodenal mucosa plays a key role in regulating glucose homeostasis and is known to be impaired in T2D progression (Figure 1).[1-11]
- Duodenal mucosal resurfacing (DMR) is a minimally invasive, endoscopic procedure using hydrothermal ablation to remove potentially dysfunctional mucosa, allowing for regeneration and restoration of metabolic function (Figure 1).[12,13]
- Previous trials in >300 patients have shown that DMR may safely and durably improve glycaemic control, insulin sensitivity, hepatic fat and weight maintenance while reducing medication burden.[13-19]
- **We assessed whether DMR clinical trial outcomes in T2D can translate to real-world effectiveness by evaluating initial safety and efficacy from a single centre participating in a post-market registry.**

Figure 1. Rationale for Targeting Duodenal Dysfunction with DMR

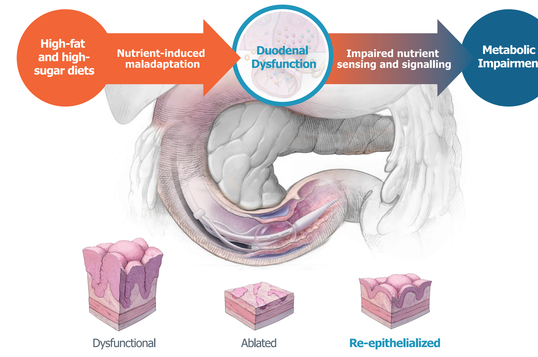

Table 1. Registry Overview and Target Inclusion and Exclusion Criteria. The ongoing, 5-year registry is a non-interventional, prospective, observational study in ≤5 German centres. Data presented are from a single centre in which participants used the Telemedical Lifestyle intervention Program (TeLiPro) as part of standard of care.[20] Briefly, the program consisted of one week complete liquid-meal replacement followed by a low-carbohydrate dietary modification. Target inclusion and exclusion criteria are shown.

Target Inclusion Criteria	Target Exclusion Criteria
≥18 years of age	Type 1 diabetes
BMI of ≤45 kg/m^2	C-peptide <0.2 nmol/L
HbA1c of ≥7.0 and ≤10.0%	Severe hypoglycaemia 12 months prior to screening
On oral and/or injectable GLAs and/or long-acting insulin	

RESULTS

Table 2. Demographics and Baseline Characteristics. Fifteen patients were enrolled, and one patient discontinued. Fourteen patients from the registry had 3-month data and were included in subsequent analyses. Baseline characteristics are consistent with inadequately controlled T2D despite most participants on ≥2 GLAs.

Demographic	N = 15
Sex, % male	60
Age, years, median (min, max)	62 (51, 70)

Baseline Characteristic	N = 15
Body weight, kg, median (min, max)	111 (66, 139)
HbA1c, %, median (min, max)	8.8 (7.3, 12.8)
FPG, mg/dL, median (min, max)	150 (101, 355)
Diabetes duration, years, median (min, max)	12 (4, 35)
GLAs, % on ≥2	73

Figure 2. Body Weight, HbA1c and FPG Change from Baseline at 3 Months Post-DMR. Nearly all patients showed a decrease in body weight with a median (min, max) change from baseline reduction of 6.5 kg (-20, 0 kg) (A). Likewise, most patients showed improvements in both HbA1c and FPG with a median (min, max) change from baseline reductions of 1.5% (-4.2%, 3.6%) and 33 mg/dL (-250, 90 mg/dL), respectively (B and C).

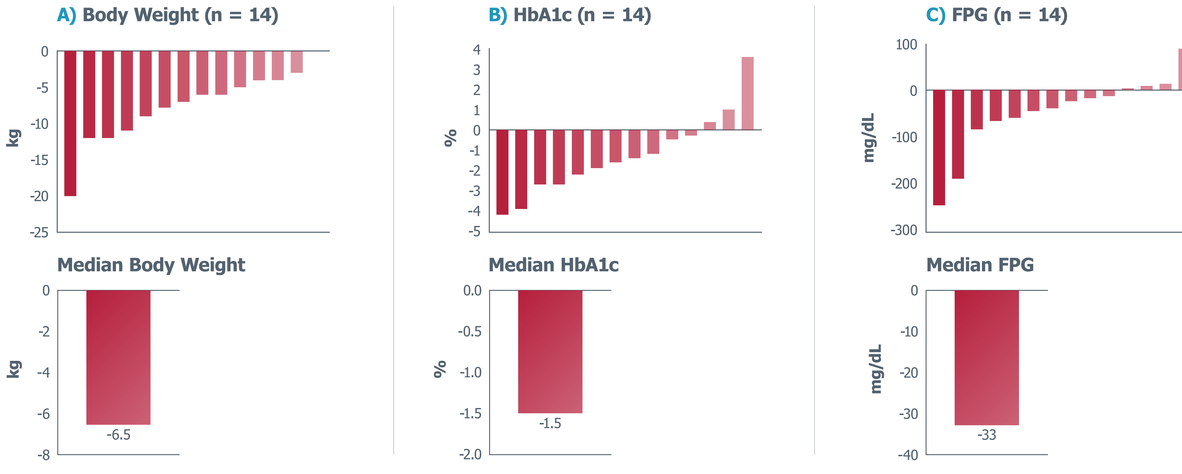

Table 3. GLA Usage. GLAs were assessed at baseline and 3 months post-DMR. GLA usage remained stable or decreased in all participants. Thirty-three percent (n=5) of participants stopped ≥1 GLA, and 20% (n=3) eliminated GLA usage altogether.

GLA	Baseline (n [%])	3 months (n [%])
Biguanide	12 (80)	11 (73)
DPP-4i	3 (20)	2 (13)
GLP-1RA	5 (33)	3 (20)
Insulin, short-acting	1 (7)	0
Insulin, long-acting	2 (13)	0
SGLT-2i	4 (27)	4 (27)
Sulfonylurea	1 (7)	0

Table 4. Overall Safety Summary. The DMR procedure was well tolerated with no DMR-related serious adverse events reported to date. One patient experienced an erysipelas on the right ankle and leg.

Category	All (n)	DMR related (n)
Adverse event	1	0
Serious adverse event	0	0
Adverse device event	0	0
Serious adverse device event	0	0
Device deficiency	0	0
Other	0	0

SUMMARY & CONCLUSIONS

- **In this registry, the majority of patients with T2D, inadequately controlled on standard-of-care pharmacotherapy and treated with DMR and TeLiPro lifestyle intervention, showed improvements in body weight, HbA1c and FPG.**
- **The DMR procedure was well tolerated with no procedure-related adverse events reported.**
- **These real-world, preliminary results suggest that DMR and lifestyle intervention may provide metabolic benefit while reducing medication burden in patients with T2D.**

Data presented in this poster are preliminary and based on an ongoing study. The study database has not been locked, and the data are subject to further cleaning and validation.

The Revita® System for Duodenal Mucosal Resurfacing (DMR) has a CE mark with reimbursement in select medical centres in Germany and is for investigational use only in the United States.

Disclosures: SM—consultant for Fractyl Health, Inc. TV—nothing to disclose. TB—consultant for Fractyl Health, Inc. EC, HR, and KW—employees and shareholders of Fractyl Health, Inc.

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Abbreviations: BMI, body mass index; DMR, duodenal mucosal resurfacing; DPP-4i, dipeptidyl peptidase 4 inhibitor; GLA, glucose-lowering agent; FPG, fasting plasma glucose; GLP-1RA, glucagon-like peptide 1 receptor agonist; SGLT-2i, Sodium-glucose cotransporter 2 inhibitor; T2D, type 2 diabetes; TeLiPro, Telemedical Lifestyle intervention Program.

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